Amendments to the Specification:

Please replace the paragraph beginning at page 2, line 1, with the following rewritten paragraph:

Many businesses today are struggling to accurately measure profit contribution at a level necessary to accurately measure profit contribution of individual customer interactions. The reason for dilemma is found in the manner in which generally accepted accounting principles are applied. Fundamental accounting theory takes lumpy cash flows that occur in the day-to-day management of a business conducted with its customers and ~~transform~~ transforms them into smoothed income or expense items (known as accruals.) At the end of every profit reporting cycle these income and expense items are consolidated into a period end balance sheet and income statements. Reports on the state of the business can then be presented by accountants in formats necessary for the independence of ownership and management that is the basis of capital markets. Indeed, most businesses today would call its accounting process critical for survival. Unfortunately, the complexity of maintaining an accurate financial accounting process has obscured the measurement of profit contribution at a very detailed level. While the aggregate cash flows of a large company are relatively stable the individual customer-to-business cash flows are very volatile. Accounting practice to date has been comfortable with using aggregate cash flow information for the accrual accounting process(10). The accounting process based on aggregates has lead to blindness by businesses of incremental customer profit contribution measures necessary to implement customer level decision making, particularly in large businesses with many millions of customers.

Please replace the 2nd paragraph on page 2, line 23, with the following:

General Ledgers(11)(double entry book keeping systems) were early adapters of automated data processing solutions due to the match between computing capabilities of computers and the execution of the accounting process. The benefit, from reduced cost for accounting processes easily justified large expenditures in information processing technology, both in hardware and in software development. The complexity of today's general ledger applications and the age of these systems have retarded the innovation of new automated techniques taking advantage of technological advances in massively parallel computing capability.

Please replace Page 5, paragraph 8 as follows:

There remains, however, a need to resolve profit measures at a detailed level without using analytical models or statistical extrapolation(12). Such a process should utilize rule driven and data base measurement processes which will give large scale businesses a lower cost of maintenance and a technologically scalable tool to measure profit at a level of precision or resolution not possible in prior financial performance measurement processes. The present invention fulfills this need and provides other related advantages.

Please replace the Summary of the Invention, beginning on Page 5 as follows:

SUMMARY OF THE INVENTION

Prior approaches to satisfying management's desire for an accurate measure of an individual ~~decisions~~decision's (incremental or marginal) profit impact have been solved by automating the accounting process for

implementing accounting methods. Cash flows are transformed into two parts, a debit part or credit part, according to an accounting rule. Other non-cash accounting rules are implemented to create "accrual" debits and credits smoothing income and expenses and adjusting for future contingencies. (see Management Accounting Theory ~~Book~~ books or any source of accounting theory, where the balance sheet equation and the consolidation process, the combination of flows and stocks of financial data, are developed.) The first large scale use of automated computing technology is frequently found to be the automation of the financial control or accounting processes, since it is easy to develop software to implement accountancy rules and there were large benefits in staff productivity easily observable. For businesses to observe marginal profit contributions it was necessary to use accounting information and make reasoned conclusion on how to apportion or extrapolate(12) this information into incremental customer, product or organizational profit detail. (See Fig. 1)

What these methods of profit measurement lack are the adequate level of detail to measure an individual or incremental decision's impact on profit. To gain this new level of profit resolution this invention is designed to use micro profit measurement rules applied at a granular level consistent with standard accounting practice using a combination of actuarial science and mathematical set theory(48). The invention is designed to utilize massively parallel computing operations using relational database management techniques enabling profit measurement at a level not available today in a large individual customer scale business. This invention does this through a consistent application of measures(27), to a class of business entities which represent the smallest common component of profit measurement desired - the Profit Object(32).

The invention's method of apportionment of non-object related profit measures specifies a method(25) which will not change the ordinal or cardinal profit contribution ranking when only marginal profit measures are counted. This specification is what makes it possible to apply marginal measurement rules(20) (see Micro-economic theory literature) with macro

economic principals; namely the sum-of-the-parts equals the whole criterion which is the basis of financial accounting theory and practice.

The invention decomposes profit measurement analytical calculations into five classifications:

- Marginal profit measures(21) associated with use of the business' balance sheet resources;
- Marginal measures(23) of non-balance oriented revenues;
- Marginal cost measures(22);
- Marginal measures of expected(24) costs or revenues; and,
- Apportioned cost measures(26).

This classification provides for additive profit measures across the five ~~components~~ classes. The preferred calculation process is designed to be independent across classes 1, 2, 3, & 4 above with the addition of class five to preserve sum-of-the-parts integrity without simultaneous calculations typically found in profit measurement processes. When all five profit measures are summed at the lowest level of profit detail, a consistent set of profit values for all types of aggregations(30) are possible - all profit measurement then originates from the same point in a profit database(42). The simultaneous use of these five analytical frameworks makes possible a detailed level of profit calculation consistent with GAAP.

In particular, the present invention relates to a process for determining object level profitability. In its basic form the process includes the steps of:

1. Preparing information to be accessed electronically(50);
2. Establishing rules for processing the prepared information(51);
3. Calculating at least one marginal value of profit using established rules as applied to a selected set of prepared information(52, 53,54,55);
4. Calculating a fully absorbed value of profit adjustment using established rules as applied to the selected set of prepared information(56); and,

5. Combining the at least one marginal value of profit and fully absorbed value of profit adjustment to create a measure for object level of profitability(57).

More specifically in the step of preparing information(40) to be accessed electronically, the database is prepared; object attributes are extracted, conditioned and loaded into the database(43), and financial statement attributes are extracted, conditioned and loaded into the database(45). If desired the step may also include extracting, conditioning and loading the event attributes into the database(44), and calculating funds transfer treatment rates(46).

In the step of establishing for processing the prepared information for rule establishment providing the information necessary to select objects and perform the correct profit calculus is accomplished(47). The step of calculating at least one marginal value of profit using established rules as applied to a selected set of prepared information includes calculating net interest, other revenue, direct expense, and/or provision for the selected set of prepared information. Net Interest (NI)(52) is the summation of interest income, value of funds provided and earnings on equity funds used less the sum of interest expense and cost of funds used. Other Revenues (OR)(53) is a measure of profit contribution from non-interest related sources. Direct Expense (DE)(54) is the profit value reduction due to marginal resource consumption by the object. Provisioning (P)(55) is the expected profit value adjustment for future outcomes related to the object.

The step of fully absorbed profit adjustment, Indirect Expense (IE)(56), is an apportioned profit value adjustment for all non-object related resource consumption by the business.

In the step of combining the five profit values, NI + OR - DE - P - IE, may be adjusted for taxes and/or object economic value(57).

The foregoing elements of the invention, which have been explained at a micro elemental level can be advantageously employed in massive amounts and parallel process power(41). For example, in the macro perspective of the invention the basic steps can be utilized.

The present invention gives management profit measures tailored to its need for accurate decision oriented profit information required to manage a large organization based on profit measurement. This invention gives businesses the ability to resolve profit measures(49) at a level of detail necessary for all types of application of profit oriented performance measurement.

Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings which illustrated, by way of example, the principles of the invention.

Please change line 7, on Page 9 as follows:

FIGURE 1 shows ~~existing~~ profit calculation process flow apparent in prior art.

Please replace the first paragraph of the Detailed Description of the Preferred Embodiment starting on Page 9 as follows:

As shown in the accompanying drawings for purposes of illustration, the present invention is concerned with a detail profit metric (DPM) designed to be a computer database application (i.e. software) for profitability measurement. DPM's profit measurement system is fundamentally different from the common profit measurement system used by regulators and public accountancy - yet, it is consistent with generally accepted accounting principals. DPM is based on object level detail of cash flows(31), ~~customer~~ events(33) and management allocations of profit arising from ~~non-customer~~ object related events(34). DPM provides both marginally(35) and fully absorbed profit measures, something traditional "general ledger" based profit accounting systems(11) can not accomplish due to reliance on aggregate debit and credit amounts(10).~~(see Figs. 2-4.)~~

Please change the subheadings on Page 10, 11 as follows:

Object Attributes(43)

Event Attributes(44)

Financial Statement Attributes(45)

Profit Measurement Parameters(46)

On Page 12, please replace the first paragraph with the following:

DPM's processing approach is to combine profit measurement techniques with (non-modeled) data and calculation parameters. Each application of this calculus is called a rule. DPM is designed to allow the user the freedom to associate a group of objects with a rule and to use object-level information in combination with rule parameters to calculate profit values. The DPM invention uses profit measurement rules separate from, but applied to, object data and the use of relational database concepts, giving the user ~~a~~ flexibility in both the assignment and depth of definition of measurement rules and measurement resolution. Use of this method is especially suited for massively parallel computing technology where linear scaleable capital investment in processing technology is possible vis-à-vis object and event count and rule complexity.

On Page 13, please replace paragraph 3 with the following paragraph:

- Apportionment ~~- In both Other Revenue, Provision and Indirect Expense calculations are applied at the object level using Financial Statement Attributes which are not related directly to an object.~~ Used in Other Revenue, Provision and Indirect Expense calculations applied at the object level using Financial Statement Attributes that are not related directly to an object. These profit adjustments are made so that the sum of all object profit equals the whole enterprise's profit - an important property of DPM's output. Accountants refer to this profit measurement technique as "full allocation of profit." DPM's

approach is to pool indirect costs and revenues and then apportion them. Apportionment rules specify how the pool is completely allocated to appropriate objects. DPM uses a specific closed form (mathematical formula that require only information known in the current period and no iterative computation) allocation rules.

Please replace the first paragraph on Page 15, with the following:

Before the calculation rules can be applied at the object or event level a calculation rule must be associated with an object, designating the methods DPM will use to calculate components of profit at the object level. An object grouping is designed to associate objects having common and defined set of object attributes for similar processing (note that a group may consist of one object). The association of a group of objects with a calculation rule is referred here as a Rule Map(47).

Please replace the fourth full paragraph beginning at the bottom of Page 15 with the following paragraph.

The DPM system is designed for Rules to be applied to any object without loss of integrity of output. This design feature allows the user to incrementally migrate objects to increased measurement precision as justified. This valuable piecewise increase in functionality is possible due to DPM's combination of rules and data in a mathematical set theoretic framework(41). This approach allows for a relational database management system implementation(42). It is nearly impossible develop and maintain procedural based software with as much flexibility and with the capability to simultaneously support the number of calculation permutations required by DPM.

On Page 16, please replace the first full paragraph with the following paragraph:

Since DPM is a ~~rule~~ rules based system the ability to restate prior period's Profit calculations are systematically possible providing historical data exists. DPM's design of object level profit measurement enables a unique historical profit restatement capability. Three features of DPM's restatement capability are:

On Page 17, at the top of the page, insert the following paragraph:

Processing Calculations

Following processing 1 and 2, database preparation and rule set-up, processing 3 through 6 perform object and event level profit calculations. In the preferred embodiment, processing calculations 3, 4, 5, and 6 are designed to allow independent execution, processing 7's calculations may require values derived in processing 3, 4, 5, and 6 and therefore occurs sequentially. In figure 5 this sequential dependence is relaxed, illustrating DPM's fundamental processing thread - the looping over objects(58) - enabling an inventive use of parallel computer processing power.

On Page 17, beginning at line 1, please replace with the following:

~~Processing (see Fig. 5)~~

Processing 1. Populate Database (see Fig. 6)

Perform standard database administration actions to initialize data for the required calculations:

- Perform database Initialization(60)
- Extract, condition & load object attributes(61)
- Extract, condition & load event attributes(62)
- Extract, condition & load financial statement attributes(63)
- Calculate and populate NI treatment rate attributes(64)

On Page 17, beginning at line 10, please replace with the following:

Processing 2. ~~MAINTAIN OBJECT GROUPS AND RULE MAPS (SEE FIG. 7)~~ **Maintain Groups and Rule Maps (see Fig. 7)**

Populate or edit Rule parameters necessary to perform calculations. Rules definition is by association of specific, non-iterative calculation, as described below, ~~with~~ to a set of object or event attributes defined as a data filter (see Relational Data Base Management System ~~textbook~~ textbooks). Rules have two pieces:

1. Parameters to drive the object selection or data filter for calculations(70); and,
2. Parameters specific to the appropriate calculation methodology(71). An easy-to-use graphical user interface can be used to maintain these data for all rules(72).

~~Steps 3 through 6 perform object and event level profit calculations. Steps 3, 4, 5, and 6 can be processed independently, step 7 requires values derived in step 3, 4, 5, and 6 and therefore occurs sequentially.~~

On Page 17, beginning at line 23, please replace with the following:

Processing 3. Calculate Net Interest for All Objects (see Fig. 8)

On Page 18, line 12, please change the heading as follows:

NI CALCULATION RULE TYPE I(80)

On Page 19, line 6, please change the heading as follows:

NI CALCULATION RULE TYPE II(81)

On Page 20, line 14, please change the heading as follows:

NI CALCULATION RULE TYPE III(82)

On Page 21, line 13, please change the heading as follows:

NI CALCULATION RULE TYPE IV(83)

On Page 22, line 10, please change the heading as follows:

NI CALCULATION RULE TYPE V(84)

On Pages 23-27, please change the headings as follows:

Option 1(85)
Option 2(86)
Option 3(87)
Option 4(88)
Processing 4. Calculate Other Revenue for All Objects (see Fig. 9)
OR Calculation Rule Type I(90)
OR Calculation Rule Type II(91)
OR Calculation Rule Type III(92)

On Pages 19-32, please change to the headings as follows:

OR Calculation Rule Type IV(93)
OR Calculation Rule Type V(94)
Processing 5, Calculate Direct Expense for All Object (see Fig. 10)
DE Calculation Rule Type I(100)
DE Calculation Rule Type II(101)
DE Calculation Rule TypeIII(102)
DE Calculation Rul Typ IV(103
DE Calculation Rul Type V(104)

Processing 6. Calculate Provision for All Objects (see Fig. 11)

P Calculation Rul Typ I(110)

P Calculation Rul Type II(111)

P Calculation Rule Type III(112)

P Calculation Rule Type IV(113)

P Calculation Rule Type V(114)

Processing 7. Calculate Indirect Expense for All Objects (see Fig.12)

On Page 34, please change the headings as follows:

IE Calculation Rule Type I(120)

IE Calculation Rule Type II(121)

IE Calculation Rule Type III(122)

On Page 36, please change the headings as follows:

IE Calculation Rule Type IV(123)

IE Calculation Rule Type V(124)

Processing 8. Calculate After-Tax Object Profit for All Objects (see Fig. 13)

On Page 36, after the headings above, please change to read as follows:

$$\text{Profit}(o_i) = [\text{NIR}(o_i) + \text{OR}(o_i) - \text{DE}(o_i) - \text{IE}(o_i) - \text{P}(o_i)] * (1 - \text{EffectiveTaxRate}) \quad (130)$$

where, for a two tier taxation system, Effective Tax Rate is calculated as:

Effective Tax Rate = (1 - tax rate 2)*(tax rate 1) + tax rate 2.

In the calculation of Effective Tax Rate, this formula assumes the two rates are effective rates which apply to the business conditions (not the nominal statutory rates), and that tax rate can be deducted from income in the calculation of tax rate. Then,

$$\text{Total Profit} = \sum_i [\text{Profit}(o_i)]$$

For those companies ~~which~~ who use economic profit value calculations, the formula changes to:

$$Profit(o_i) = \{[NIR(o_i) + OR(o_i) - DE(o_i) - IE(o_i) - P(o_i)]*(1 - EffectiveTaxRate)\} - SVA(o_i)$$

where

$$SVA(o_i) = \alpha(o_i) + \beta(o_i)*Amount(o_{i\,i})$$

and

$\alpha(o_i)$, $\beta(o_i)$ are functions for a cohort of objects in which o_i is a member, and ~~Amount~~(o_i) is given by a rule which maps o_i to a data value (such as balance, or allocated equity) also defined at the cohort level. (A cohort defined here represents a grouping of objects with similar risk characteristics, consistent with Modern Portfolio Theory and the Capital Asset Pricing Model.)

On Pages 38 and 39, please change to read the following:

For ease in understanding the rule ~~the~~ specifications used to populate the database ~~with~~ based on rule parameters the processing instructions are shown below ~~in the~~ as Rules. Also, most rules group by plane – in the rule ~~discussion~~ discussions ~~below~~ which follows ~~assumes~~ assume this grouping without reference.

Step 3: Calculate Net Interest for Seat – Four types of NIR rules are processed - type I, II, III, IV for each seat. Interest rates are matched to plane purchase date for initial plane investments, and interest rates for plane net ~~capitalizable~~ capitalize improvements are funded ~~with~~ using interest based on a 5 year pool of rates. Plane asset balances are keep in the Plane table maintained in Step 1.2 above.

NIR Type I: Carry cost of plane asset by seat is determined.

Rul

Populated in Step 2 are:

- The AAB(seat) parameter is Plane: net__orig_bal * (1/total seats on plane)
- The rt parameter is Treatment_rts: 25_yr_rate (maintained for each plane) There is no need for liability rates.

Calculate COF(seat) = AAB(seat) * rt for all seats on flight.

All other attributes are NI Type I calculations results are null.

No grouping.

NIR Type II : Allocate net receivable/payable to seat for carry cost profit adjustment. This adjusts profitability for the impact of cash flows vs. accounting flows. This airline wants to apportion this cost across all revenue seats based on class_wt, a ~~modelling~~ modeling parameter. ~~Total weighted seats (tws) for the accounting period is a modelling parameter. Where the seat~~ Total weighted seats (tws) for the accounting period are modeling parameter. Seat factor is determined as a ratio of seat footprint to class portion of the plane's seat revenue space. (e.g. 1st = 15%, 2nd = 25% & 3rd = 60% of plane's seat revenue space with each seat evenly apportioned in class – 1/20, 1/80, 1/300 respectively, in this case.)

On Page 42, beginning at line 10, please replace as follows:

Rule

normalized weight for apportioning revenue amongst classes.

(1/ (no_seats???))

where type "freight" for each seat.

Group seats by class where ??? is 1st,2nd,3rd. class cabin

On Page 44, beginning at line 24, please replace as follows:

Rul

Populated in Step 2 are:

- Customer bene_miles is maintained using prior periods provision for benefit miles by loyalty customer.
- A parameter estimating the usage rate by loyalty cohart called burn factor

Calculate P(seat) = Flight:distance * burn(loyalty_rating)

Grouping by loyalty rating into rule map.

P Type IV: Future order cancellation reserve.

Rule

Populated in Step 2 are:

- Future airplane order cancellation penalty (pen) and order size (fut_planes) is maintained in the financial entity
- Last 12 months loading is calculated by plane

Calculate P(seat) = pen * (Plane:orig_bal /fut_planes)* 1/(total no. seats on plane) * ½4 where last 12 months loading less than 75%. Only for seats on where last 12 months loading is less than 75%.

Step 7: Calculate Indirect Expenses for each Seat – The calculation of indirect expense is the final step of detailed level profit calculation. Here remaining cost measures that are not differentiable by seat are measured. Fuel and oil, ground costs, regular aircraft maintenance, overheads, and general marketing expenses are apportioned in IE. The airline also wants to view customer profitability loaded with the cost of unoccupied seats.

IE Type I: General and administrative costs are apportioned to a seat in this rule.

Rul

Populated in Step 2 are:

- The periods financial entity is populated with all of the airlines G&A expenses (e.g., type of G&A are passenger services, navigation licenses, rentals, miscellaneous costs, premises and property taxes.) Allocate these costs based on seat revenue (NI + OR.)

Calculate IE(seat) = sum(Financial trn_amt) * (sum(NI(seat)) + sum(OR(seat))) / (Total OR + NI for period)

No seat grouping in rule map for all Financial type = "G&A".

IE Type II: Ground location costs, airport specific and gate expenses are apportioned by flight.

Rule

Populated in Step 2 are:

- Populate all of these expenses for the period Transactions trn_amt with the type being the three letter international airport identifier.

On Page 47, line 3, replace as follows:

Calculate IE(seat) = sum of Transactions trn_amt*

On Page 48, line 6, please replace as follows:

Populated, after all prior steps are ~~caluclated~~ calculated, are the total DE less OR for each flight during the period, idef.

On Page 48, line 26, please change as follows:

Cost of capital rate is ~~paramterized~~ parameterized (eqrt)